Instruments for Suicide Risk Assessment

YELLOW REPORT | A SYSTEMATIC REVIEW

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Executive summary

Background

Suicide is one of the leading causes of death worldwide. Identifying individuals at risk of future suicide or suicide attempts is of clinical importance. However, suicidal behaviour is complex and difficult to predict. Instruments have been developed to facilitate the assessment of the risk of future suicidal acts.

Objective

The aim of this systematic review was to examine the scientific evidence for the use of instruments to assess risk of future suicidal behaviour.

Method

The systematic review was conducted using the standard methods of the Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU). Studies that employed instruments to assess risk of future suicidal acts (fatal or non-fatal) in patient populations of any age were reviewed. The ability of the instrument to predict risk for future suicide/suicide attempt was assessed at follow up. A sensitivity of >80% was required for an instrument to be considered reliable. A lower limit (>50%) was set for specificity. The level of evidence was rated according to GRADE (strong, moderate, low or very low).

Conclusions

- None of the included studies provided scientific evidence to support that any instrument had sufficient accuracy to predict future suicide with 80% sensitivity and 50% specificity.
- There is strong evidence to support that the SAD PERSONS Scale has very low sensitivity. Most persons who make future suicidal acts are not identified.
- Research is needed to clarify if assessment of suicide risk is enhanced when an instrument is used as a complement to the global clinical assessment. To date such research is lacking.
- More research is needed to clarify the reliability of the commonly used instruments SUAS and C-SSRS.
- As of yet there are no studies that assess whether the suicide item of the Montgomery Åsberg Depression Rating Scale (MADRS) can predict suicidal acts.

Results

Thirteen instruments that assessed the risk of subsequent suicide attempts and nine instruments that assessed the risk of suicide were identified. Only one instrument, the suicide item of the Patient Health Questionnaire- 9 (PHQ-9) was evaluated in primary care. The participants in the majority of the studies were adolescents and adults, who had either just completed a self-destructive act or had a current depression or anxiety disorder. Table 1 summarizes the results for the instruments for which there were sufficient studies to assess the scientific evidence. As shown in table 1, no instruments met the above defined requirements for sensitivity and specificity. There were not enough studies to assess the reliability of the Suicide Assessment Scale (SUAS) and the Columbia Suicide Severity Rating Scale (C-SSRS), ie the scientific evidence was insufficient. We identified no studies that evaluated the Montgomery Åsberg Depression Rating Scale (MADRS) suicide item.

An important consideration is that the instruments are evaluated in specific populations, usually including people with episodes of self-harm or suicidal acts, with a high risk of repeat behaviours. It is uncertain whether the results are transferable to populations with lower risk. Furthermore, the follow-up periods were long, often several years, and therefore clinically less relevant. In addition, persons identified as being at high risk of suicide are offered other interventions than their peers, which in itself may influence future risk of suicide and thus the instrument's predictive ability.

Table 1 Summary of the results.

Instrument	Outcome	Sensitivity (95% CI)	Specificity (95% CI)	Evidence	Consequence
Population: patients with depression/ anxiety disorder					
BHS	Suicide	89 (78; 95)	42 (40; 43)	Moderate ⊕⊕⊕◯	Low specificity
SSI-C	Suicide	53 (34; 72)	83 (82; 84)	Low ⊕⊕◯◯	Low sensitivity, risk to miss persons with suicide risk
SSI-W	Suicide	80 (61; 92)	78 (77; 79)	Moderate ⊕⊕⊕◯	The lower CI for sensitivity was too low.
PHQ-9 Suicide item	Suicide	80 (66; 91)	70 (70; 71)	Low ⊕⊕◯◯	The lower CI for sensitivity was too low.
	Suicide attempts	78 (74; 81)	70 (70; 71)	Moderate ⊕⊕⊕◯	Somewhat low sensitivity but borderline
Population: patients at psychiatric emergency care					
SAD PERSONS Scale	Suicide attempts*	15 (8; 24)	97 (96; 98)	Strong ⊕⊕⊕⊕	Low sensitivity; high risk to miss suicidal
Modified SAD PERSONS Scale	Suicide attempts	29 (19; 40)	89 (88; 90)	Low ⊕⊕◯◯	Low sensitivity; high risk to miss persons with suicide risk
MINI Suicide module	Suicide attempts	61 (47; 73)	75 (69; 80)	Low ⊕⊕◯◯	Low sensitivity
Population: patients presenting after self-harm/suicide attempts"					
MSHR	Suicide attempts	97 (96; 97)	20 (20; 21)	Strong ⊕⊕⊕⊕	Low specificity
ReACT	Suicide	90 (82; 95)	17 (18; 18)	Moderate ⊕⊕⊕◯	Low specificity
	Suicide attempts	94 (93; 94)	24 (23; 25)	Moderate ⊕⊕⊕◯	Low specificity
SOS-4	Suicide attempts	90 (86; 93)	17 (15; 19)	Strong ⊕⊕⊕⊕	Low specificity
SIS	Suicide	76 (62; 87)	49 (47; 51)	Low ⊕⊕◯◯	Somewhat low sensitivity

* *In one of the studies the population was patients presenting after self-harm.*

MSHR = *Manchester self harm rule;* **ReACT** = *Recent self-harm in the past year – Alone or homeless, Cutting used as a method of harm, Treatment for a psychiatric disorder;* **SIS** = *Beck's suicide intent scale;* **SoS-4** = *Södersjukhuset self-harm rule*

Ethical aspects

Although there is no scientific evidence supporting the use of the examined instruments for the identification of individuals at risk, these tools might be useful from a pedagogical perspective. If integrated into a dialogue in which the clinician is able to provide ample space for the patient's description and understanding of the situation, an instrument may help to elicit more information, with relevant and uniform content".

Consequences

This systematic review found no scientific support for the use of suicide risk instruments for predicting suicidal acts. The SAD PERSONS Scale is not reliable and should not be used in its present form. However, assessment instruments may have some value as educational aides for less experienced staff.

Studies are lacking to show whether or not these instruments might improve prediction when used as a complement to the global clinical assessment. Future studies will need to test for relevance for different age, gender or diagnostic groups.

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